Mathematics Content Standard A - Numbers and Number Sense — PAAP Rubric Level 1

Students will understand and demonstrate a sense of what numbers mean and how they are used.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio contains evidence that:	Portfolio contains evidence that:	Portfolio contains evidence that:	Portfolio contains evidence that:	**Students will be able to:**
A1. Student can identify, locate, match, **or** copy a model set of 2 to 5 objects.	A1. Student can identify, locate, match, **or** copy a model set of 6 to 10 objects.	A1. Student can **match** written or oral numerals to a given set of 5 to 9 objects.	A1. Student can **match** written or oral numerals to a given set of 10 to 20 objects.	**A1. Demonstrate an understanding of what numbers mean (e.g., that the number 7 stands for a group of objects).**
A2. Student can **identify** one real-life purpose of numbers (e.g., prices, recipes, measurement, games, directions in play).	A2. Student can **identify** two or more real-life purposes of numbers (e.g., prices, recipes, measurement, games, directions in play).	A2. Student can **use** numbers for two real-life purposes (e.g., prices, recipes, measurement, games, directions in play).	A2. Student can **use** numbers for three real-life purposes (e.g., prices, recipes, measurement, games, directions in play).	**A2. Understand the many uses of numbers (e.g., prices, recipes, measurement, directions in play).**
A3. Student can do **one of the following:** • identify a set that matches a given set. • rote count to 10. • make a set that matches a given set • given two objects of different sizes, identify the one that is bigger/smaller • Identify or copy a group of 2-5 objects when given a group of 2-5 objects.	A3. Student can do **one of the following:** • identify a number to 10 when presented with the numeral. • rote count to 20. • order numbers 1-5. • make and count groups of 10. given two sets with up to five members, identify which has more/is bigger. • match written or oral numerals to a given set of objects with up to 10 members. • with or without objects, identify the number of tens in a given number.	A3. Student can do **one of the following:** • identify a number to 100 when presented with the numeral. • rote count to 100. • order numbers 1-20. • make and count groups of two, five, and ten (up to 100). • given three sets with up to twenty members, identify which has most/the biggest/the smallest. • match written or oral numerals to a given set of objects (more than 10). • with or without objects, student can identify the number of tens in a given number up to 100.	A3. Student can do **one of the following:** • identify a number to 1000 when presented with the numeral. • rote count from 900 to 1000. • order numbers over 20-1000. • make and count groups of two, five, and ten (to get to totals of 100 to 1000). • given more than three sets with up to twenty members, identify the biggest and smallest. • match written numerals to a given set of objects (more than 15). • with or without objects, identify the number of tens in a given number up to 1000.	**A3. Order, compare, read, group, and apply place value concepts to numbers up to 1,000.**

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Mathematics Content Standard A - Numbers and Number Sense (*continued*) PAAP Rubric Level 1

Students will understand and demonstrate a sense of what numbers mean and how they are used.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio contains evidence that: A4. **Given** a **mathematical statement or question related to quantities** up to **five**, the student can **indicate whether or not the statement is correct or answer the question** (ex., activity demonstrating one-to-one correspondence such as: *Give the student a set of pencils. Ask the student to give a pencil to each member of a group. Before the student passes out the pencils, have him/her indicate whether there are enough pencils to go around.)*	Portfolio contains evidence that: A4. **Given real-life math problems involving quantities** up to **ten** with their solutions, the student can **correctly determine whether given solutions are reasonable** or not (ex. Student responds "yes" or "no" to a question about the reasonableness of a solution).	Portfolio contains evidence that: A4. **Given real-life math problems**, **involving quantities** up to **100**, the student can correctly **determine whether the solutions (given or created) are reasonable** or not**.**	Portfolio contains evidence that: A4. **Given real-life math problems**, involving quantities up to **1000**, the student can correctly **determine whether the solutions** (given or created) **are reasonable** or not.	**Students will be able to:** **A4. Determine reasonableness of results when working with quantities.**

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Mathematics Content Standard A - Numbers and Number Sense — PAAP Rubric Level 2

Students will understand and demonstrate a sense of what numbers mean and how they are used.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio contains evidence that:	Portfolio contains evidence that:	Portfolio contains evidence that:	Portfolio contains evidence that:	**Students will be able to:**
A1. Student can **read** (identify) whole **numbers up to ten thousand.**	A1. Student can **read** (identify) and **either compare, order, classify, or explain whole numbers up to ten thousand.**	A1. Student can **read** (identify) **and either compare, order, classify or explain whole numbers up to one hundred thousand.**	A1. Student can **read** (identify), **and either compare, order, classify, or explain whole numbers up to one million.**	**A1. Read, compare, order, classify, and explain whole numbers up to one million.**
A2. Student can **read** (identify) 1/2, 1/4, 1/3, and 1/6 **and match** them to appropriate models.	A2. Student can **read** (identify) 1/2, 1/4, 1/3, and 1/6, and, in addition, with or without models, **do one** of the following: **compare, order, classify or explain** those fractions.	A2. Student can **read** (identify) 1/2, 1/4, 1/3, 1/6, **and**, in addition, with or without models, **do two** of the following: c**ompare, order, classify or explain** those fractions.	A2. Student can **read** (identify) simple fractions, including 1/2, 1/4, 1/3, 1/6, 1/10, and at least one fraction with a numerator other than 1, **and do two** of the following using those fractions: **compare, order, classify, explain, simple fractions through tenths,** without models.	A2. Read, compare, order, classify, and explain simple fractions through tenths.
A3. Student can find and **identify** decimal points in various monetary values.	A3. Student can **demonstrate** one use **and/or** application of decimals and integers.	A3. Student can **demonstrate** two uses **and/or** applications of decimals and integers.	A3. Student can **demonstrate** understanding of the meaning of decimals and integers through three uses and/or applications.	**A3. Demonstrate knowledge of the meaning of decimals and integers and an understanding of how they may be used.**

Mathematics Content Standard B – Computation and Problem Solving — PAAP Rubric Level 1

Students will understand and demonstrate computation skills.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
B1. Student can, given two sets of objects with up to five members each, **identify one** or more of the following: the larger/smaller, longer/shorter, heavier/lighter, one with more/less, hotter/colder, etc.	B1. Student can, **given choices, use estimation** related to non-standard or standard measurement for **one** of the following: volume, temperature, weight, or length.	B1. Student can **use estimation** related to non-standard or standard measurement for **one** of the following: volume, temperature, weight, lengths, quantity, computation, or problem-solving.	B1. Student can **use estimation** related to non-standard or standard measurement for **two** of the following: volume, temperature, weight, length, quantity, computation, or problem-solving.	**B1. Use and apply estimation with quantities, measurements, computations, and problem-solving.**
B2. Student can **copy or match** the members of **sets** of objects (with two to five members) **to get** the **total** number of objects.	B2. Student can, with or without manipulatives, **use one strategy** (ex., touch math, number line, calculator, counting of concrete objects) to solve problems involving **addition and subtraction** of whole numbers.	B2. Student can, with or without manipulatives, **use two strategies** (ex., touch math, number line, calculator, counting of concrete objects) to solve problems involving **addition and subtraction** of whole numbers.	B2. Student can, with or without manipulatives, **use three** strategies to solve problems involving **addition and subtraction** of whole numbers.	**B2. Use multiple strategies in solving problems involving addition and subtraction of whole numbers.**
B3. Student can show understanding of addition by **accurately counting** a set of 5 or fewer objects.	B3. Student can show understanding of **addition by** combining two sets and identifying the total number of members in the resulting set.	B3. Student can show understanding of **addition and subtraction** by choosing an appropriate strategy for each and using the numerical symbols +, -, and =.	B3. Student can show understanding of **addition and subtraction** by **using** more than one **materia**l, three **strategies**, and the **numerical symbols** +, -, and =.	**B3. Show understanding of addition and subtraction by using a variety of materials, strategies, and symbols.**

***Non-standard units might be hands, foot size, string, etc.**

Mathematics Content Standard B - Computation and Problem Solving — PAAP Rubric Level 2

Students will understand and demonstrate computation skills.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
B1. Student can **solve single step, real-life problems** using **addition and subtraction** with whole numbers.	B1. Student can **solve two step, real-life problems** using **addition and subtraction** with whole numbers.	B1. Student can **solve multi-step, real-life problems** using **addition and subtraction** with whole numbers and single step, real-life problems using **multiplication** of whole numbers.	B1. Student can **solve multi-step, real-life problems** using **all four operations** with whole numbers.	**B1. Solve multi-step, real-life problems using the four operations with whole numbers.**
B2. Student can **solve problems** involving **addition** of simple fractions with common denominators (1/2, 1/4, 1/3, 1/6), with or without using concrete models (ex., pattern blocks, geoboards).	B2. Student can **solve real-life problems** involving **addition** of simple fractions with common denominators (1/2, 1/4, 1/3, 1/6), with or without using concrete models (ex., pattern blocks, geoboards).	B2. Student can **solve real-life problems** involving **addition or subtraction** of simple fractions with common denominators (1/2, 1/4, 1/3, 1/6, 1/8, 1/10) without using concrete models (ex., pattern blocks, geoboards).	B2. Student can **solve real-life problems** involving **addition and subtraction** of simple fractions with common denominators (1/2, 1/4, 1/3, 1/6, 1/8, 1/10), without using concrete models (ex., pattern blocks, geoboards).	**B2. Solve real-life problems involving addition and subtraction of simple fractions.**
B3. Student can, **given a problem**, identify an appropriate **tool or technology** to solve it.	B3. Student can, **given a problem, use** an appropriate **tool or technology** to solve it.	B3. Student can, **given a problem, use** appropriate **tools and/or technology** to solve it and **describe/demonstrate** the problem-solving **process** applied.	B3. Student can, **given a problem, use** appropriate **tools and/or technology** to solve it, **describe/demonstrate** the **process** applied, and **defend** the reasonableness of **results**.	**B3. Demonstrate and explain the problem-solving process using appropriate tools and technology and defend the reasonableness of results.**
B4. Student demonstrates proficiency with **addition and subtraction facts** and **addition algorithms** when working with two 2 digit whole numbers, by using a variety of materials, strategies, and technologies.	B4. Student demonstrates proficiency with the **addition and subtraction** facts and **addition and subtraction algorithms,** when working with up to two, 2 digit whole numbers, by using mental math and a variety of materials, strategies, and technologies.	B4. Student demonstrates proficiency with the **addition, subtraction, multiplication, and division facts** and **addition, subtraction, and multiplication algorithms,** when working with whole numbers with two or more digits, using mental math and a variety of materials, strategies, and technologies.	B4. Student demonstrates proficiency with the **facts and algorithms of the four operations** when working with whole numbers, using mental math and a variety of materials, strategies, and technologies.	**B4. Develop proficiency with the facts and algorithms of the four operations on whole numbers using mental math and a variety of materials, strategies, and technologies.**

Mathematics Content Standard C - Data Analysis and Statistics — PAAP Rubric Level 1

Students will understand and apply concepts of data analysis.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
C1. Student can **collect** data for given arrangement.	C1. Student can **collect and arrange** data.	C1. Student can **solve** problems by c**ollecting, arranging, and interpreting** data.	C1. Student can **formulate and solve** problems by **collecting, arranging, and interpreting** data.	**C1. Formulate and solve problems by collecting, arranging, and interpreting data.**
C2. Student can **tally** information provided.	C2. Student can **tally** information gathered from immediate surroundings.	C2. Student can **tally and graph** information provided.	C2. Student can **tally and graph** information gathered from immediate surroundings.	**C2. Make tallies and graphs of information gathered from immediate surroundings.**

Mathematics Content Standard C - Data Analysis and Statistics — PAAP Rubric Level 2

Students will understand and apply concepts of data analysis.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
C1. Student can **make generalizations and draw conclusions** using one type of graph **or** table.	C1. Student can **make generalizations and draw conclusions** using two types of graph, two different tables, **or** one type of graph and one type of table.	C1. Student can **make generalizations and draw conclusions** using two types of graph, **and** one type of table.	C1. Student can **make generalizations and draw conclusions** using two types of graph, and two different tables.	**C1. Make generalizations and draw conclusions using various types of graphs, charts, and tables.**
C2. Student can **read** one type of data display.	C2. Student can **read** two different **types** of data display.	C2. Student can **read three** different **types** of data display **and interpret one type** of data.	C2. Student can **read and interpret three different types** of data display.	**C2. Read and interpret displays of data.**

Mathematics Content Standard D - Probability — PAAP Rubric Level 1

Students will understand and apply concepts of probability.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that: D1. After observing a simple event/trial, student can, given choices, **identify** the **appropriate outcome** to be recorded.	Portfolio will provide evidence that: D1. Given an event (trial) with two possible outcomes, student can **choose the more likely or less likely to occur.**	Portfolio will provide evidence that: D1. Student can **record outcomes** of simple events (trials), and **identify the most likely outcome** based on the data recorded.	Portfolio will provide evidence that: D1. Student can, using concepts of chance, **predict the outcome(s)** of a simple event and **check his/her prediction** by recording outcomes of such an event.	**Students will be able to:** **D1. Use concepts of chance and record outcomes of simple events.**

Mathematics Content Standard D - Probability — PAAP Rubric Level 2

Students will understand and apply concepts of probability.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
D1. Given an event with **two possible outcomes**, student can **explain/demonstrate** the outcomes **more likely and less likely** to occur.	D1. Given an event with **three possible outcomes,** student can **explain/demonstrate** outcomes **more likely and less likely** to occur.	D1. Student can **explain/demonstrate** the **concept of chance** in predicting the outcomes of **given** simple **events**.	D1. Student can **explain/demonstrate the concept of chance** in predicting outcomes.	**D1. Explain the concept of chance in predicting outcomes.**
D2. After completing up to six trials that are recorded, the student will **identify** how many times each outcome occurred.	D2. After completing up to six trials that are recorded, the student will use the recorded data to **estimate the least or most likely** of the outcomes for a subsequent trial.	D2. Student can **estimate probability as a fraction** from a sample of observed **outcomes or simulations** with up to six trials.	D2. Student can estimate **probability as a fraction** from a sample of observed **outcomes and simulations** with up to six trials.	**D2. Estimate probability from a sample of observed outcomes and simulations.**

Mathematics Content Standard E - Geometry — PAAP Rubric Level 1

Students will understand and apply concepts from geometry.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
E1. Student can **identify one or more** 2D shapes.	E1. Student can **identify and model (ex., draw, cut out, sketch) two** 2D shapes.	E1. Student can **identify, describe or model (ex., draw, cut out, sketch), and classify** three 2D shapes.	E1. Student can **describe or model (ex., draw, cut out, sketch), and classify three 2D shapes and describe or model (ex., (construct, build, create, illustrate) one 3D figure.**	**E1. Describe, model, and classify 2D shapes and selected 3D figures.**
E2. Given a choice of two 2D shapes, student can **select** the one that will cover a given 2D shape.	E2. Student can **combine** two or more 2D shapes to cover a 2D shape.	E2. Student can **demonstrate and predict** the **results of combining and dividing, or changing 2D shapes.**	E2. Student can **demonstrate and predict** the **results of combining, dividing, and changing 2D shapes.**	**E2. Investigate and predict the results of combining, dividing, and changing 2D shapes.**
E3. Student can **match one positional word** describing the relationship between two objects (e.g., over, under, beside, to the left) **to given examples** of that relationship.	E3. Student can **match two or more positional words describing the relationship among two or more objects** (e.g., over, under, beside, to the left) to given examples of those relationships.	E3. Student can **use three positional words** (e.g., over, under, beside, to the left) **to describe** the relationship among two or more objects.	E3. Student can **use four or more positional words to describe** the relationship (e.g., over, under, beside, to the left) of two or more objects.	**E3. Use positional words to describe the relationship of two or more objects (e.g., over, under, beside, to the left).**

Mathematics Content Standard E - Geometry — PAAP Rubric Level 2

Students will understand and apply concepts from geometry.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
E1. Student can **classify 2D** shapes and **3D** figures using applicable properties.	E1. Student can **classify and model 2D** shapes and **3D** figures using applicable properties.	E1. Student can **describe, model, and classify 2D** shapes and figures; and, **classify and model 3D** figures, using applicable properties.	E1. Student can **describe, model, and classify 2D** and **3D** shapes and figures using applicable properties.	**E1. Describe, model, and classify shapes and figures using applicable properties.**
E2. Through experimentation, student can **match congruent** shapes among a set of four shapes.	E2. Through experimentation student can **identify congruent shapes and lines of symmetry.**	E2. Through experimentation, student can **identify and model congruent shapes and lines of symmetry.**	E2. Through experimentation with shapes and figures, student can **make generalizations** regarding **congruency, symmetry, and similarity.**	**E2. Experiment with shapes and figures to make generalizations regarding congruency, symmetry, and similarity.**
E3. Student can **identify** transformations such as **slides or flips.**	E3. Student can use transformations such as slides **and** flips.	E3. Student can use transformations such as slides, flips, and rotations with three shapes.	E3. Student can use transformations such as slides, flips, and rotations with four or more shapes.	**E3. Use transformations such as slides, flips, and rotations.**
E4. Student can **identify three** different **shapes** and **figures** in the physical world.	E4. Student can **identify five** different **shapes** and **figures** in the physical world.	E4. Student can **use** the **properties** of shapes and figures **to describe three** aspects of the physical world.	E4. Student can **use** the **properties** of shapes and figures **to describe four** aspects of the physical world.	**E4. Use the properties of shapes and figures to describe the physical world.**

Mathematics Content Standard F – Measurement — PAAP Rubric Level 1

Students will understand and demonstrate measurement skills.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
F1. Student can **compare** two items or events based on length, temperature, **or** weight, by identifying, for example, which is longer/shorter, hotter/colder, or heavier/lighter.	F1. Student can **measure** (using non-standard of standard units) **two of the following:** length, weight, time, temperature, capacity.	F1. Student can **estimate and measure two of the following:** length, weight, time, temperature, capacity.	F1. Student can **estimate and measure three of the following:** length, temperature, weight, time, capacity.	**F1. Estimate and measure length, time, temperature, weight, and capacity.**
F2. Student can **match** coins (penny, nickel, dime, **or** quarter) **to** the **coin's picture or a coin of the same value.**	F2. Student can **match** coins (penny, nickel, dime, **and** quarter) **to** the **coin's name**, given orally or in writing.	F2. Student can **identify** the **penny, nickel, dime and quarter**, and **give the value of two** of them.	F2. Student can **identify and give the value of the penny, nickel, dime, and quarter.**	**F2. Identify and give the value of different coins.**
F3. Student can **identify** appropriate **standard tools** for determining **one** or more **of the following**: length, temperature, weight, time, capacity.	F3. Student can **select and use** appropriate standard and/or nonstandard **tools** for determining **two of the following:** length, time, temperature, weight, capacity.	F3. Student can **select and use** appropriate standard **and** nonstandard tools for determining **three of the following:** length, time, temperature, weight, capacity.	F3. Student can **select** appropriate standard **and** nonstandard tools for determining **length, temperature, weight, time, and capacity**, and **use two** of them **to solve** every day **problems**.	**F3. Select standard and non-standard tools for determining length, time, temperature, weight, and capacity, and use them to solve every day problems.**

****Non-standard units might be hands, foot size, string, etc.***

Mathematics Content Standard F – Measurement — PAAP Rubric Level 2

Students will understand and demonstrate measurement skills.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
F1. Student can **solve** real-life problems involving **two** of the following: the measurement of time, length, area, perimeter, weight, temperature, mass, capacity, volume.	F1. Student can **solve** real-life problems involving **three** of the following: the measurement of time, length, area, perimeter, weight, temperature, mass, capacity, volume.	F1. Student can **solve** real-life problems involving **four** of the following: the measurement of time, length, area, perimeter, weight, temperature, mass, capacity, volume.	F1. Student can **solve and justify solutions** to real-life problems involving **three** of the following: the measurement time, length, area, perimeter, weight, temperature, mass, capacity, volume.	**F1. Solve and justify solutions to real-life problems involving the measurement of time, length, area, perimeter, weight, temperature, mass, capacity, and volume.**
F2. Student can **select standard measuring tools** that are appropriate for measuring **five** of the following: time, length, weight, temperature, area, perimeter, mass, capacity, volume.	F2. Student can **select standard measuring tools** that are appropriate for measuring **six** of the following: time, length, weight, temperature, area, perimeter, mass, capacity, volume.	F2. Student can **select measuring tools and units of measurement** that are appropriate for measuring **five** of the following: time, length, weight, temperature, area, perimeter, mass, capacity, volume.	F2. Student can **select measuring tools and units of measurement** that are appropriate for measuring **six** or more of the following: time, length, weight, temperature, area, perimeter, mass, capacity, volume.	**F2. Select measuring tools and units of measurement that are appropriate for what is being measured.**

Mathematics Content Standard G - Patterns, Relations, Functions — PAAP Rubric Level 1

Students will understand that mathematics is the science of patterns, relationships, and functions.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
G1. Student can **copy** a pattern with two or more components.	G1. Student can recognize, **copy, and extend** a pattern with two or more components.	G1. Student can recognize, **copy, extend, and describe** a wide variety of patterns with three or more components.	G1. Student can **recognize, copy, describe, extend, and create** a wide variety of patterns with three or more components.	**G1. Recognize, describe, extend, copy, and create a wide variety of patterns.**
G2. Student can correctly **identify** two given sets **as** being **equal or unequal**.	G2. Student can **select the group** that is **greater than, less than, or equal to,** from three or more groups.	G2. Student can **use open sentences** to describe relationships (ex., >, <, =).	G2. Student can **use variables and open sentences** to describe relationships (ex., >, <, =).	**G2. Explore the use of variables and open sentences to describe relationships.**
G3. Given **two similar shapes <u>or</u> two numbers,** student can **identify** the one that is bigger/smaller in the given set.	G3. Given **two similar shapes <u>and</u> two numbers,** student can **identify** the one that is bigger/smaller in each set.	G3. Student can **represent/model <u>or</u> describe three geometric <u>or</u> numeric relationships.**	G3. Student can **represent/model <u>or</u> describe three relationships,** some of which are **geometric, and** some of which are **numeric.**	**G3. Represent and describe both geometric and numeric relationships.**

Mathematics Content Standard G - Patterns, Relationships, Functions — PAAP Rubric Level 2

Students will understand that mathematics is the science of patterns, relationships, and functions.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that: G1. Student can **use patterns of numbers, geometry, and one type of graph.** G2. From four or more choices, student can **select** the one that **matches** a given situation.	Portfolio will provide evidence that: G1. Student can **use patterns of numbers, geometry, and two types of graph.** G2. Student can correctly **complete open sentences.**	Portfolio will provide evidence that: G1. Student can **create patterns of numbers, geometry, and a type of graph.** G2. Student can **use open sentences to express relationships.**	Portfolio will provide evidence that: G1. Student can **use patterns of numbers, geometry, and two types of graphs to solve problems.** G2. Student can **use variables and open sentences to express relationships.**	**Students will be able to:** **G1. Use the patterns of numbers, geometry, and a variety of graphs to solve a problem.** **G2. Use variables and open sentences to express relationships.**

Mathematics Content Standard H - Algebra Concepts — PAAP Rubric Level 1

Students will understand and apply algebraic concepts.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
H1. Student can **select from two choices**, the model/picture that accurately represents the answer to a problem situation or mathematical expression (ex., choose picture representing the number of people in your family from two given choices).	H1. Student can **draw, act out, or otherwise model two problem situations** in which there is an unknown, **incorporating a choice of tools or approaches.**	H1. Student can **draw, act out, or otherwise model two problem situations** in which there is an unknown, **using two tools and/or approaches.**	H1. Student can **draw, act out, or otherwise model, three problem situations and mathematical expressions,** in which there is an unknown, using **three tools and approaches**.	**H1. Make drawings for problem situations and mathematical expressions in which there is an unknown, using a variety of tools and approaches.**
H2. Given a choice of two mathematical expressions (ex., *add* - combine two sets of objects; *bigger* - identify bigger item of two given), student can **select the one that correctly describes the relationship.**	H2. Student can **use concrete materials to express numerical and other relationships.** EXAMPLE • Using unifix cubes to show how 2 + 4 and 4 + 2 will equal 6.	H2. Student can **use concrete materials to express numerical relationships and use numeric symbols to represent sums and differences.**	H2. Student can **use language and numeric symbols to express numerical and other relationships**. EXAMPLE • Show all the ways to make 10 (e.g., 2 + x = 10, and so forth) by using blocks or other objects to demonstrate mathematical statements.	**H2. Use language and symbols to express numerical and other relationships.**

Mathematics Content Standard H - Algebra Concepts — PAAP Rubric Level 2

Students will understand and apply algebraic concepts.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that: H1. Student can **supply missing elements** in simple equations. EXAMPLE 4 + 6 = ___ H2. Student can **solve for a missing addend for sums up to 10** in an equation with a variable. EXAMPLE 3 + x = 10	Portfolio will provide evidence that: H1. Student can **use** (evaluate) **simple given formulas** in problem-solving contexts. H2. Student can **solve for a missing addend for sums up to 100** in an equation with a variable. EXAMPLE 25 + x = 100	Portfolio will provide evidence that: H1. Student can **choose and use** (evaluate) **simple given formulas** in problem solving contexts. H2. Student can **find appropriate replacements for variables** that make number sentences related to **addition or subtraction** true.	Portfolio will provide evidence that: H1. Student can **develop, and use** (evaluate) **simple formulas** in problem-solving contexts. H2. Student can **find appropriate replacements for variables** that make number sentences related to **all of the four operations** true.	**Students will be able to:** **H1. Develop and evaluate simple formulas in problem-solving contexts.** **H2. Find replacements for variables that make simple number sentences true.**

Mathematics Content Standard I - Discrete Mathematics — PAAP Rubric Level 1

Students will understand and apply concepts in discrete mathematics.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	Portfolio will provide evidence that:	**Students will be able to:**
I1. Student can **sort** objects in a **set** with **five or fewer members** into two groups, using **one given attribute.**	I1. Student can **sort sets** of objects with **more than five members** into two groups, using **one attribute.**	I1. Student can **classify** the same **set** of objects with **more than five members** into two or more groups, two times, using **a different attribute for each sort** (ex., shape for first sort; color for second sort).	I1. Student can **classify** the same **set** of objects with **more than five members** into two or more groups, using **two different attributes in a single sort** (ex., one attribute could be square and the second attribute could be red). **Some members of the original set may have neither or both attributes. They will form separate groups. Based on the attributes in the example above, a blue circle would not have either attribute, while a red square would have both attributes.*	**I1. Classify sets of objects into two or more groups using their attributes.**
I2. **Given a choice of two** elements, student can **choose** one that would be an element in an organized list for a given category.	I2. Student can **identify elements** of things to be in a specific organized list.	I2. Student can **describe how** a given organized list (with six or fewer elements) was **made**.	I2. Student can **create and use** an organized list to determine possible outcomes or solve problems.	**I2. Create and use an organized list to determine possible outcomes or solve problems.**

Mathematics Content Standard I - Discrete Mathematics — PAAP Rubric Level 2

Students will understand and apply concepts in discrete mathematics.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio will provide evidence that: I1. Student can **use one** of the following: organized lists, tree diagrams, Venn diagrams, networks. I2. Student can describe/**demonstrate what a mathematical solution is.**	Portfolio will provide evidence that: I1. Student can **use two** of the following: organized lists, tree diagrams, Venn diagrams, networks. I2. Student can **identify** six given solutions **as finite or infinite.**	Portfolio will provide evidence that: I1. Student can **create and use one** of the following: organized lists, tree diagrams, Venn diagrams, networks. I2. Student can **give three examples** of **infinite and/or finite solutions.**	Portfolio will provide evidence that: I1. Student can **create and use two** of the following: organized lists, tree diagrams, Venn diagrams, networks. I2. Student can **give three examples of infinite and three examples of finite solutions.**	**Students will be able to:** **I1. Create and use organized lists, tree diagrams, Venn diagrams, and networks.** **I2. Give examples of infinite and finite solutions.**

Mathematics Content Standard J - Mathematical Reasoning — PAAP Rubric Level 1

Students will understand and apply concepts of mathematical reasoning.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio contains evidence that: J1. Student can, **given two points of view** on a particular issue, **identify** the **one** with which he/she agrees. J2. Student can **respond accurately to directions** related to a task involving mathematics.	Portfolio contains evidence that: J1. **Presented with an argument,** student can identify **whether he/she agrees with it** and why. J2. Student can **identify or select** the **majority of mathematical information** included in a set of given information.	Portfolio contains evidence that: J1. Student can **identify facts that support an argument and facts that do not support the argument.** J2. Student, when asked a mathematical question, can **identify what information he/she needs to answer the question.**	Portfolio contains evidence that: J1. Student can describe/**demonstrate** a simple **argument's strengths and weaknesses.** J2. Student can **distinguish between "important" and "unimportant" mathematical information.**	Students will be able to: **J1. Describe a simple argument's strengths and weaknesses.** **J2. Distinguish between "important" and "unimportant" mathematical information.**

Mathematics Content Standard J - Mathematical Reasoning — PAAP Rubric Level 2

Students will understand and apply concepts of mathematical reasoning.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio contains evidence that: J1. Student can **provide one type of evidence to support a claim** (e.g., logical processes, measurement, observation, experimentation).	Portfolio contains evidence that: J1. Student can **provide two types of evidence to support a claim** (e.g., logical processes, measurement, observation, experimentation).	Portfolio contains evidence that: J1. Student can **provide three types of evidence to support a claim** (e.g., logical processes, measurement, observation, experimentation).	Portfolio contains evidence that: J1. Student can **demonstrate understanding** that **support for a claim should be based on evidence of various types** (e.g., from logical processes, from measurement, or from observation and experimentation).	**Students will be able to:** **J1. Demonstrate an understanding that support for a claim should be based on evidence of various types (e.g., from logical processes, from measurement, or from observation and experimentation).**

Mathematics Content Standard K - Mathematical Communication PAAP Rubric Level 1

Students will reflect upon and clarify their understanding of mathematical ideas and relationships.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio contains evidence that: K1. Student can **use signs/symbols that communicate math concepts** (ex., more, take away, same, different, etc.).	Portfolio contains evidence that: K1. Student can **use numerals and/or one or more mathematical symbols** (ex., >, <, =, +, -) to communicate.	Portfolio contains evidence that: K1. Student can **use numerals or symbols to report numerical data.**	Portfolio contains evidence that: K1. Student can **use numerals and symbols** (>, <, =, +, -) **to report numerical data and relationships.**	**Students will be able to:** **K1. Use numerals and symbols (>, <, =, +, -) to report numerical data and relationships.**

Content Standard K - Mathematical Communication — PAAP Rubric Level 2

Students will reflect upon and clarify their understanding of mathematical ideas and relationships.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Portfolio contains evidence that: K1. Student can **use simple tables or graphs to record** information.	Portfolio contains evidence that: K1. Student can **read simple tables and graphs to gain and share information.**	Portfolio contains evidence that: K1. Student can **use simple tables or graphs to record and communicate** ideas and information.	Portfolio contains evidence that: K1. Student can **use simple tables and graphs to communicate ideas and information in presentations** in a concise and clear manner.	**Students will be able to:** **K1. Use simple tables and graphs to communicate ideas and information in presentations in a concise and clear manner.**

Mathematics Content Standard A - Numbers and Number Sense				PAAP Rubric Level 3
Students will understand and demonstrate a sense of what numbers mean and how they are used.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 3.	*Students will be able to:* **1. Use numbers in a variety of equivalent and interchangeable forms (e.g., integer, fraction, decimal, percent, exponential, and scientific notation) in problem-solving.** **2. Demonstrate understanding of the relationships among the basic arithmetic operations on different types of numbers.** **3. Apply concepts of ratios, proportions, percents, and number theory (e.g., primes, factors, and multiples) in practical and other mathematical solutions.** **4. Represent numerical relationships in graphs, tables, and charts.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Numbers and Number Sense at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard A - Numbers and Number Sense				PAAP Rubric Level 4
Students will understand and demonstrate a sense of what numbers mean and how they are used.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard A, Numbers and Number Sense, at PAAP Rubric Level 4.	*Students will be able to:* **1. Describe the structure of the real number system and identify its appropriate applications and limitations.** **2. Explain what complex numbers (real and imaginary) mean and describe some of their many uses.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Numbers and Number Sense at this Rubric Level.	

Mathematics Content Standard B - Computation and Problem Solving				PAAP Rubric Level 3
Students will understand and demonstrate computation skills.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of the skills and strategies related to mathematical computation. The student employs inappropriate strategies and applies understandings related to the Content Standard inaccurately and/or inappropriately at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic skills and strategies related to mathematical computation. Accurate and appropriate application of related strategies and skills are used inconsistently at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the skills and strategies related to mathematical computation. The student employs appropriate strategies, but applies some computation skills inaccurately and/or inappropriately at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to mathematical computation. The student employs appropriate strategies and applies skills accurately and appropriately at PAAP Rubric Level 3.	*Students will be able to:* **1. Compute and model all four operations with whole numbers, fractions, decimals, sets of numbers, and percents, applying the proper order of operations.** **2. Create, solve, and justify the solution for multi-step, real-life problems including those with ration and proportion.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Computation and Problem Solving at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard B - Computation and Problem Solving				PAAP Rubric Level 4
Students will understand and demonstrate computation skills.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of the skills and strategies related to mathematical computation and problem solving. The student employs inappropriate strategies and applies understandings related to the Content Standard inaccurately and/or inappropriately at PAAP Rubric Level 4	Evidence indicates that the student has developed basic skills and strategies related to mathematical computation and problem solving. Accurate and appropriate application of related strategies and skills are used inconsistently at PAAP Rubric Level 4	Evidence indicates that the student has partially developed the skills and strategies related to mathematical computation and problem solving. The student employs appropriate strategies, but applies some skills inaccurately and/or inappropriately at PAAP Rubric Level 4	Evidence indicates that the student has the ability to consistently use the skills and strategies related to mathematical computation and problem solving. The student employs appropriate strategies and applies skills accurately and appropriately at PAAP Rubric Level 4	*Students will be able to:* **1. Use various techniques to approximate solutions, determine the reasonableness of answers, and justify the results.** **2. Explain operations with number systems other than base 10.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Computation and Problem Solving at this Rubric Level.	

Mathematics Content Standard C - Data Analysis and Statistics — PAAP Rubric Level 3

Students will understand and apply concepts of data analysis.

Performance Level 1	Performance Level 2	Performance Level 3	Performance Level 4	*Learning Results* Performance Indicators
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level 3.	*Students will be able to:* **1. Organize and analyze data using mean, median, mode, and range.** **2. Assemble data and use matrices to formulate and solve problems.** **3. Construct inferences and convincing arguments based on data.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Data Analysis and Statistics at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard C - Data Analysis and Statistics				PAAP Rubric Level 4
Students will understand and apply concepts of data analysis.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard C, Data Analysis and Statistics, at PAAP Rubric Level4.	*Students will be able to:* **1. Determine and evaluate the effect of variables on the results of data collection.** **2. Predict and draw conclusions from charts, tables, and graphs that summarize data from practical situations.** **3. Demonstrate an understanding of concepts of standard deviation and correlation and how they relate to data analysis.** **4. Demonstrate an understanding of the idea of random sampling and recognition of its role in statistical claims and designs for data collection.** **5. Revise studies to improve their validity (e.g., in terms of better sampling, better controls, or better data analysis techniques).**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Data Analysis and Statistics at this Rubric Level.	

Mathematics Content Standard D - Probability				PAAP Rubric Level 3
Students will understand and apply concepts of probability.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard D, Probability, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard D, Probability, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard D, Probability, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard D, Probability, at PAAP Rubric Level 3.	*Students will be able to:* **1. Find the probability of simple events and make predictions by applying the theories of probability.** **2. Explain the idea that probability can be represented as a fraction between and including zero and one.** **3. Use simulations to estimate probabilities.** **4. Find all possible combinations and arrangements involving a limited number of variables.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Probability at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard D - Probability				PAAP Rubric Level 4
Students will understand and apply concepts of probability.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard D, Probability, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard D, Probability, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard D, Probability, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard D, Probability, at PAAP Rubric Level 4.	*Students will be able to:* **1. Find the probability of compound events and make predictions by applying probability theory.** **2. Create and interpret probability distributions.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Probability at this Rubric Level.	

Mathematics Content Standard E - Geometry				PAAP Rubric Level 3
Students will understand and apply concepts from geometry.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard E, Geometry, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard E, Geometry, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard E, Geometry, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard E, Geometry, at PAAP Rubric Level 3.	*Students will be able to:* **1. Compare, classify, and draw two dimensional shapes and three dimensional figures.** **2. Apply geometric properties to represent and solve real-life problems involving regular and irregular shapes.** **3. Use a coordinate system to define and locate position.** **4. Use the appropriate geometric tools and measurements to draw and construct two and three dimensional figures.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Geometry at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard E - Geometry				PAAP Rubric Level 4
Students will understand and apply concepts from geometry.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard E, Geometry, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard E, Geometry, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard E, Geometry, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard E, Geometry, at PAAP Rubric Level 4.	*Students will be able to:* **1. Draw coordinate representations of geometric figures and their transformations.** **2. Use inductive and deductive reasoning to explore and determine the properties of and relationships among geometric figures.** **3. Apply trigonometry to problem situations involving triangles and periodic phenomena.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Geometry at this Rubric Level.	

Mathematics Content Standard F - Measurement				PAAP Rubric Level 3
Students will understand and demonstrate measurement skills.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard F, Measurement, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard F, Measurement, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard F, Measurement, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard F, Measurement, at PAAP Rubric Level 3.	*Students will be able to:* . **1. Demonstrate the structure and use of systems of measurement.** **2. Develop and use concepts that can be measured directly, or indirectly (e.g., the concept of rate).** **3. Demonstrate an understanding of length, area, volume, and the corresponding units, square units, and cubic units of measure.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Measurement at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard F - Measurement				**PAAP Rubric Level 4**
Students will understand and demonstrate measurement skills.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard F, Measurement, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard F, Measurement, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard F, Measurement, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard F, Measurement, at PAAP Rubric Level 4.	*Students will be able to:* . **1. Use measurement tools and units appropriately and recognize limitations in the precision of the measurement tools.** **2. Derive and use formulas for area, sue area, and volume of many types of figures.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Measurement at this Rubric Level.	

Mathematics Content Standard G - Patterns, Relations, Functions				PAAP Rubric Level 3
Students will understand that mathematics is the science of patterns, relationships, and functions.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 3.	*Students will be able to:* **1. Describe and represent relationships with tables, graphs, and equations.** **2. Analyze relationships to explain how a change in one quantity can result in a change in another.** **3. Use patterns and multiple representations to solve problems.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Patterns, Relations, Functions at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard G - Patterns, Relations, Functions				PAAP Rubric Level 4
Students will understand that mathematics is the science of patterns, relationships, and functions.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard G, Patterns, Relations, Functions, at PAAP Rubric Level 4.	*Students will be able to:* **1. Create a graph to represent a real-life situation and draw inferences from it.** **2. Translate and solve a real-life problem using symbolic language.** **3. Model phenomena using a variety of functions (linear, quadratic, exponential, trigonometric, etc.)** **4. Identify a variety of situations explained by the same type of function.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Patterns, Relations, Functions at this Rubric Level.	

Mathematics Content Standard H - Algebra Concepts				PAAP Rubric Level 3
Students will understand and apply algebraic concepts.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard H, Algebra Concepts, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard H, Algebra Concepts, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard H, Algebra Concepts, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard H, Algebra Concepts, at PAAP Rubric Level 3.	*Students will be able to:* **1. Use the concepts of variables and expressions.** **2. Solve linear equations using concrete, informal, and formal methods which apply the order of operations.** **3. Analyze tables and graphs to identify properties and relationships in a practical content.** **4. Use graphs to represent two-variable equations.** **5. Demonstrate an understanding of inequalities and non-linear equations.** **6. Find solutions for unknown quantities in linear equations and in simple equations and inequalities.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Algebra Concepts at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard H - Algebra Concepts				PAAP Rubric Level 4
Students will understand and apply algebraic concepts.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard H, Algebra Concepts, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard H, Algebra Concepts, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard H, Algebra Concepts, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard H, Algebra Concepts, at PAAP Rubric Level 4.	*Students will be able to:* **1. Use tables, graphs, and spreadsheets to interpret expressions, equations, and inequalities.** **2. Investigate concepts of variation by using equations, graphs, and data collection.** **3. Formulate and solve equations and inequalities.** **4. Analyze and explain situations using symbolic representations.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Algebra Concepts at this Rubric Level.	

Mathematics Content Standard I - Discrete Mathematics				PAAP Rubric Level 3
Students will understand and apply concepts in discrete mathematics.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard I, Discrete Mathematics, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard, I, Discrete Mathematics at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard I, Discrete Mathematics, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard I, Discrete Mathematics, at PAAP Rubric Level 3.	*Students will be able to:* **1. Create and use networks to explain practical situations or solve problems.** **2. Identify patterns in the world and express these patterns with rules.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Discrete Mathematics at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard I - Discrete Mathematics				PAAP Rubric Level 4
Students will understand and apply concepts in discrete mathematics.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of Performance Indicators for Mathematics Content Standard I, Discrete Mathematics, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the use of the skills and strategies of Performance Indicators for Mathematics, Content Standard, I, Discrete Mathematics at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the knowledge, skills and strategies related to Performance Indicators for Mathematics, Content Standard I, Discrete Mathematics, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently use the skills and strategies related to Performance Indicators for Mathematics, Content Standard I, Discrete Mathematics, at PAAP Rubric Level 4.	*Students will be able to:* **1. Use linear programming to find optimal solutions to a system.** **2. Use networks to find solutions to problems.** **3. Apply strategies from game theory to problem-solving situations.** **4. Use matrices as tools to interpret and solve problems.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Discrete Mathematics at this Rubric Level.	

Mathematics Content Standard J - Mathematical Reasoning				PAAP Rubric Level 3
Students will understand and apply concepts of mathematical reasoning.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of concepts related to Performance Indicators for Mathematics Content Standard J, Mathematical Reasoning, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the application of concepts related to Performance Indicators for Mathematics, Content Standard, J, Mathematical Reasoning at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the ability to apply concepts related to Performance Indicators for Mathematics, Content Standard J, Mathematical Reasoning, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently apply the concepts related to Performance Indicators for Mathematics, Content Standard J, Mathematical Reasoning, at PAAP Rubric Level 3.	*Students will be able to:* **1. Support reasoning by using models, known facts, properties, and relationships.** **2. Demonstrate that multiple paths to a conclusion may exist.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Mathematical Reasoning at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

Mathematics Content Standard J - Mathematical Reasoning				PAAP Rubric Level 4
Students will understand and apply concepts of mathematical reasoning.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results* Performance Indicators**
Evidence indicates that the student is in the initial stages of development of concepts related to Performance Indicators for Mathematics Content Standard J, Mathematical Reasoning, at PAAP Rubric Level 4.	Evidence indicates that the student has developed basic abilities in the application of concepts related to Performance Indicators for Mathematics, Content Standard J, Mathematical Reasoning, at PAAP Rubric Level 4.	Evidence indicates that the student has partially developed the ability to apply concepts related to Performance Indicators for Mathematics, Content Standard J, Mathematical Reasoning, at PAAP Rubric Level 4.	Evidence indicates that the student has the ability to consistently apply the concepts related to Performance Indicators for Mathematics, Content Standard J, Mathematical Reasoning, at PAAP Rubric Level 4.	*Students will be able to:* **1. Analyze situations where more than one logical conclusion can be drawn from data presented.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Mathematical Reasoning at this Rubric Level.	

Mathematics Content Standard K - Mathematical Communication				PAAP Rubric Level 3
Students will reflect upon and clarify their understanding of mathematical ideas and relationships.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results* Performance Indicators**
Evidence indicates that the student is in the initial stages of development of concepts related to Performance Indicators for Mathematics Content Standard K, Mathematical Communication, at PAAP Rubric Level 3.	Evidence indicates that the student has developed basic abilities in the application of concepts related to Performance Indicators for Mathematics, Content Standard K, Mathematical Communication, at PAAP Rubric Level 3.	Evidence indicates that the student has partially developed the ability to apply concepts related to Performance Indicators for Mathematics, Content Standard K, Mathematical Communication, at PAAP Rubric Level 3.	Evidence indicates that the student has the ability to consistently apply the concepts related to Performance Indicators for Mathematics, Content Standard K, Mathematical Communication, at PAAP Rubric Level 3.	*Students will be able to:* **1. Translate relationships into algebraic notation.**
The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	The PAAP contains evidence that the student has met the standards for Mathematical Communication at this Rubric Level and is ready to transition to the next Rubric Level for this Content Standard.	

69Mathematics Content Standard K - Mathematical Communication				PAAP Rubric Level 4
Students will reflect upon and clarify their understanding of mathematical ideas and relationships.				
Performance Level 1	**Performance Level 2**	**Performance Level 3**	**Performance Level 4**	***Learning Results*** **Performance Indicators**
Evidence indicates that the student is in the initial stages of development of concepts related to Performance Indicators for Mathematics Content Standard K, Mathematical Communication, at PAAP Rubric Level 4. The PAAP contains evidence of limited progress toward the development of rudimentary components related to this Content Standard.	Evidence indicates that the student has developed basic abilities in the application of concepts related to Performance Indicators for Mathematics, Content Standard K, Mathematical Communication, at PAAP Rubric Level 4. The PAAP contains evidence that there are some misconceptions, inconsistencies, and/or vague understandings related to this Content Standard.	Evidence indicates that the student has partially developed the ability to apply concepts related to Performance Indicators for Mathematics, Content Standard K, Mathematical Communication, at PAAP Rubric Level 4. The PAAP contains evidence that the student is progressing toward, but still has some gaps in knowledge or skills and/or inconsistently applies strategies related to this Content Standard.	Evidence indicates that the student has the ability to consistently apply the concepts related to Performance Indicators for Mathematics, Content Standard K, Mathematical Communication, at PAAP Rubric Level 4. The PAAP contains evidence that the student has met the standards for Mathematical Communication at this Rubric Level.	*Students will be able to:* **1. Restate, create, and use definitions in mathematics to express understanding, classify figures, and determine the truth of a proposition or argument.** **2. Read mathematical presentations of topics within the Learning Results with understanding.**

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